

MOTSKUS, I.B. (Kaunas); SHAL'TYANIS, V.R. [SaltJanis, V.] (Kaunas)

Algorithm for the optimum design and multistage development of rural  
electric power distribution networks. Izv. AN SSSR. Otd. tekhn. nauk.  
Energ. i transp. no.1:24-35 Ja-F '63. (MIRA 16:5)  
(Rural electrification) (Electric power distribution)

MOTSKUS, I.B. [Mockus, I.] (Kaunas)

Methods for integral linear programming of some nonlinear problems of optimum design. Izv. AN SSSR. Energ. i transp. no. 4:410-416 JI-Ag '63. (MIRA 16:11)

MOTSKUS, I.B.; FEL'DBAUM, A.A.

Symposium on multiextremal problems. Avtom. i telemekh. 24 no.11:  
1597-1598 N '63. (MIRA 16:12)

MOTSKUS, I.B. [Mockus, I.] (Kaunas)

Method for distributing random tests in solving extremum  
problems. Zhur. vych. mat. i mat. fiz. 4 no.2:380-385  
Mr-Apr '64. (MIRA 17:7)

LEONAS, V.L. (Kaunas); MOTSKUS, I.B. [Mockus, I.] (Kaunas)

Method for sequential search for the optimization of industrial  
systems and networks. Izv. AN SSSR. Energ. i transp. no.1:18-25  
Ja-F '65. (MIRA 18:4)

L 63602-65 EAT(d) IJP(c)

ACCESSION NR: AP5016967

UR/0280/65/000/003/0045/0049

AUTHOR: Motskus, I. B. (Kaunas)

TITLE: Some psychological experiments related to the solution of the problem of the shortest distance between points in a plane

SOURCE: AN SSSR. Izvestiya. Tekhnicheskaya kibernetika, no. 3, 1965, 45-49

TOPIC TAGS: heuristic capability, multiextremum problem, shortest distance

ABSTRACT: The author investigates the problem of the quantitative estimation of heuristic capability in humans during the solution of multiextremum problems. The problem was studied by means of a suitable example concerning the shortest connection between points in a plane (20 to 29 points specified at random, 5 minutes for the study of the problem, 15 min. for its solution). The test was administered to 169 students of the II course in the Department of electrical engineering. Certain basic characteristics of the applied methodology are outlined in detail, and the dependence of the human response on various factors is discussed. During the particular test, the mean deviation from the global minimum was about 10%. Individual participants were able to find solutions within 2% of the optimum value. "The pertinent calculations on the BESM-2M

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I. 63602-65

ACCESSION NR: AP5016967

3  
were carried out by I. Ambrazeyute, B. Pashkevichute and I. Dudzevichus participated in the experiments; the latter reported the preliminary results at the symposium on multiextremum problems held in Trakay in 1963 (I. B. Motkus, A. A. Fel'dbaum, Avtomatika i telemekhanika, 1963, v. XXII, no. 5)." Orig. art. has: 8 formulas and 4 figures.

ASSOCIATION: none

SUBMITTED: 15Feb65

ENCL: 00

SUB CODE: PH, MA

NO REF SOV: 005

OTHER: 002

Card <sup>KL</sup> 2/2

L 06985-67 EWT(d)/EWP(v)/EWP(k)/EWP(h)/EWP(l) JT  
ACC NR: AT6018278 SOURCE CODE: UR/3192/65/000/010/0033/0042

AUTHOR: Leonas, V. L.; Motkus, I. B.

ORG: none

14  
TITLE: Sequential search method used for optimizing closed-loop systems and networks

22  
B+/

SOURCE: AN LatSSR. Institut elektroniki i vychislitel'noy tekhniki. Avtomatika i vychislitel'naya tekhnika, no. 10, 1965, 33-42

TOPIC TAGS: optimization, graph theory

ABSTRACT: The problem of optimization (cost minimization) of an electric, transportation, gas-distribution, heat-distribution, or other industrial systems is represented as a directed graph; the costs are represented by nonlinear functions of graph branches. If the cost function is convex, the methods of linear and convex programming are applicable. If the cost function is not necessarily convex, an approximate method of sequential search is recommended. The well-known

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UDC: 62-505.7



L 06985-67

ACC NR: AT6018278

techniques of exploratory search with graph "trees" are described; a global minimum of each variable is found. If the cost function represents a sum or a product of individual functions that depend on one variable, a global minimum is reached; in other cases, the minimum attained still lies pretty close to the global minimum. Orig. art. has: 4 figures, 13 formulas, and 1 table.

SUB CODE: 12, 09 / SUBM DATE: none / ORIG REF: 008 / OTH REF: 001

Card 2/2

ACC NR: AT6018280

SOURCE CODE: UR/3192/65/000/010/0077/0102

AUTHOR: Motskus, I. B.

ORG: none

TITLE: One sequential procedure of statistical solution of extremal problems 14

SOURCE: AN LatSSR. Institut elektroniki i vychislitel'noy tekhniki. Avtomatika i vychislitel'naya tekhnika, no. 10, 1965, 77-102

TOPIC TAGS: optimization, automatic control R and D, extremal automatic control

ABSTRACT: The problem of finding minimum of a multiextremal function with an allowance for trial losses is considered. All trials consist of two parts: (1) Search trials which determine the subrange that comprises (2) The remaining trials. A procedure of statistical decisions is given for the case when the law of distribution of the cost  $U = U(x)$  of the object is logarithmically normal;  $x = (x_i)$ ,  $i = 1, 2, \dots, l$  where  $x_i$  are independent variables which determine the state of the object. The statistical procedure approaches its optimum as the member  $m$  of trials increases; with  $m \rightarrow \infty$ , it converges into a Bayes solution that corresponds to a given a-priori

UDC: 62-506:519.25

Card 1/2

ACC NR: AT6018280

distribution of the mathematical expectation of the lower sample of  $U$ . The procedure includes these steps: the law of distribution of  $U$  with a random  $x$ ; the mathematical expectation of the lower sample of  $U$ ; the maximum likelihood estimators for parameters of the distribution function  $F(u)$ ; the asymptotically normal estimator of the mathematical expectation of the lower sample of  $U$ ; the conditional probability density of parameter  $M$ ; the function of a conditional distribution of the difference of mathematical expectations of two lower samples of  $U$  lying in disjoint regions; the mathematical expectation of losses due to placing the available trials into one of the disjoint regions; calculation of the cost of errors with a given number of trials; asymptotically optimal plan of sequential sampling; case of normal distribution; partition of the total space into a set of disjoint regions; multistep partition. Orig. art. has: 3 figures and 117 formulas.

SUB CODE: 12 / SUBM DATE: none / ORIG REF: 006 / OTH REF: 001

Card 2/2

MOTSKUS, M.B.; FEL'DBAUM, A.A.

Symposium on multioptimizing problems. Izv. AN SSSR. Tekh.  
kib. no.5:175-176 S-0 '63. (MIRA 16:12)

NOTES D.V. [unclear]

Synthesis and properties of some new compounds  
trans-2-methylcyclohexanecarbaldehyde. Izv. Akad. Nauk SSSR, Ser. Khim. (1975) 18:51  
no.3:95-100

1. Institut khimicheskoy tekhnologii AN SSSR, Moscow



MOTSINAYA, M.Ya., kand.med.nauk

Significance of comparing clinical and encephalographical data in  
evaluating brain tumors of immature histostucture and malignant  
course. Probl.sovr.neirokhir. 4:131-135 '62. (MIRA 16:2)  
(BRAIN—CANCER) (ELECTROENCEPHALOGRAPHY)

MOTSNIY, A.V.; SHIYAN, F.I.; BAZILEVSKIY, A.R.; VOLOSHINA, N.M.

Treating internal surfaces of ingot molds with a powdered-metal  
paste. Sbor.rats.predl.vnedr.v proizvod. no.5:17 '69. (MIRA 14:8)

1. Yenakiyevskiy metallurgicheskiy zavod.  
(Foundries—Equipment and supplies)



*MOTSNYI, P. E.*

USSR/Medicine - Neurology

Card 1/1 Pub. 22 - 16/47

Authors : Motsnyy, P. E.

Title : Adaptation of motor nerves to electric stimuli increased exponentially

Periodical : Dok. AN SSSR 99/1, 65-68, Nov 1, 1954

Abstract : Experiments were conducted on frogs to determine the effect of electric stimuli, produced by exponentially increasing electric pulses of various lengths, on the adaptation of motor nerves. Seven references (1888-1949). Graphs.

Institution : Dnepropetrovsk State University

Presented by : Academician A. D. Speranskiy, August 19, 1954

*Translation M-631, 13 Jul 55*

MOTSNIY, P.Ye.

Materials on the characteristics of central excitation. *Fiziol.zhur.*  
(Ukr.) 1 no.1:7-14 Ja-F '55. (MIRA 9:9)

1. Dnipropetrovs'kiy derzhavniy universitet, Kafedra fiziologii  
lyudini i tvarin.  
(SPINAL CORD)

MOTSNYI, P.Ye

Bioelectric manifestations in spinal cord centers in inhibition.  
Fiziol.shur. 41 no.3:346-352 My-Je '55. (MLRA 2:8)

1. Kafedra fiziologii cheloveka i shivotnykh Dnepropetrovskogo  
Gosudarstvennogo universiteta.

(SPINAL CORD, physiology,  
biol-electric manifest. in inhib. in cats)

MOTSNIY, P.Ye.

Work of the Dnepropetrovsk branch of the Ukrainian Society of  
Physiologists, Biochemists, and Pharmacologists. Fiziol.sbur.

41 no.4:592 J1-Ag '55.

(MLA 8:10)

(PHYSIOLOGY--SOCIETIES) (BIOCHEMISTRY--SOCIETIES)

(PHARMACOLOGY--SOCIETIES)

MOTSNYY, P. Ye.

MOTSNYY, P. Ye. "Material on the Characteristics of Central Inhibition."  
Leningrad Order of Lenin State U imeni A. A. Zhdanov.  
Leningrad, 1956. (Dissertation for Degree of Doctor in  
Biological Science)

So: Knizhaya Letopis', No. 17, 1956.

USSR/Human and Animal Physiology. Nervous System. Spinal Cord. T-10

Abs Jour: Ref Zhur-Biol., No 12, 1958, 56003.

Author : Motsnyy, P. Ye.

Inst : Academy of Sciences Georgian SSR. 1.

Title : The Effect of Polarization of Motor Centers upon  
Spinal Cord Reflexes in Warm-Blooded Animals in  
Connection with the Problem of the Character of  
Reciprocal Inhibition.

Orig Pub: V sb.: Probl. sovrem. fiziol. nervn. i myshechn.  
sistem. Tbilisi, AN GruzSSR, 1956, 13-223.

Abstract: Direct current was led through a microelectrode (50  $\mu$ )  
inducted into the anterior horn and through an indif-  
ferent electrode which was fastened on the dorsal  
muscles of spinally anesthetized cats. Before nembutal  
was administered, both the anode and cathode polariza-

Card : 1/3

USSR/Human and Animal Physiology. Nervous System. Spinal Cord. T-10

Abs Jour: Ref Zhur-Biol., No 12, 1958, 56003.

tion of motor centers caused a weakening in reflectory reactions (RR). In the presence of deep narcosis, the anode which was connected to the microelectrode, increased the RR. However, the cathode's inhibitory effect upon the RR was displayed in a stronger manner. The cathode polarization of motor centers by current stimuli of short duration (with exponential increases and decreases) caused two-phase changes of the RR curve. The latter was first reinforced and then depressed (for a longer period of time). The changes of the RR curve, which were observed when the above indicated method of motor center polarization was used, proved to be comparable to the changes of the same RR under the influence of afferent impulse discharges from the contralateral (in other words, inhibiting)

Card : 2/3

MOTSNYI, P., prof.

Electricity of neurons. Nauka i zhyttia 12 no.11:30-31 N  
'62. (MIRA 16:1)

(NERVES) (ELECTROPHYSIOLOGY)



S/196/63/000/002/006/026  
E194/E155

**AUTHORS:** Andreyesku, N., and Motsok, K.

**TITLE:** The influence of irradiation in the nuclear reactor of the Bucharest Institute of Atomic Physics on the magnetic properties of certain ferrites used in automatic devices

**PERIODICAL:** Referativnyy zhurnal, Elektrotekhnika i energetika, no.2, 1963, 4, abstract 2 B 27. (Rev. phys. RFR, v.7, no.2, 1962, 183-191)

**TEXT:** The influence of irradiation on the magnetic characteristics ( $H_M$ ,  $B_B$ ,  $H_s$ ,  $B_r/B_M$  and  $\mu_{BH}$ ) of ferrites with a rectangular hysteresis loop and ferrites of high permeability prepared in the Institute of Atomic Physics was investigated. Toroidal cores of the following analysis were irradiated:  $Fe_2O_3 \cdot ZnO \cdot Me_1O \cdot Me_2O$ , where  $Me_1$  and  $Me_2$  are ions of Mn, Mg, Ni. The samples were irradiated in a neutron flux with an intensity of  $6 \times 10^{12}$  neutrons/cm<sup>2</sup>.sec. The magnetic properties of ferrites

Card 1/2

The influence of irradiation in ...

S/196/63/000/002/006/026  
E194/E155

with a rectangular hysteresis loop were little changed by an irradiation dose of  $(1.7 - 2.6) \times 10^{18}$  neutrons/cm<sup>2</sup>. In ferrites of high  $H_c$  and very rectangular permeability curves, the permeability falls and the curve is somewhat less rectangular after irradiation. Test results on ferrites of high permeability show that the maximum hysteresis loop is little changed by neutron irradiation although the initial permeability and the permeability in weak fields are diminished. The diminution is associated with changes in the grain structure of the ferrites, perhaps due to dislocation or to defects in the crystal lattice. Changes in the rectangularity after irradiation may be due to reduction in the degree of uniformity caused by radiation.  
5 figures, 6 references.

ASSOCIATION: In-t atomnoy fiziki, Bukharest, RNR  
(Institute of Atomic Physics, Bucharest, RPR)

[Abstractor's note: Complete translation.]

Card 2/2

SOILS. / Soil Science. Cultivation. Erosion. 7-5  
Erosion.

Abs Jour: Ref Zhur-Biol., No 3, 1958, 5-161.

Author : Motsch, Eirch.

Inst : Not given.

Title : Fight Against Soil Erosion in the Russian Popular  
Republic.

Orig Pub: Mezhdunar. s. zh. zh., 1957 No 1, 81-8.

Abstract: No abstract.

Card 1/1

51

AUTHOR: Motsokheyn, B.I.; Portnoy, T.Z.

90-58-6-3/7

TITLE: An Adjustable Electric Drive for Drilling Pumps (Reguliruyemyy elektroprivod dlya burovykh nasosov)

PERIODICAL: Energeticheskiy Byulleten', 1958, Nr 6, pp 15-21 (USSR)

ABSTRACT: The author demonstrates that the use of an un-regulatable drive does not permit drilling pumps to function at their full hydraulic efficiency, since it is impossible to select the optimum productivity for the different depth stages of the bore hole. A regulatable electric drive has many advantages in this respect in that: the full drive power of the pump can be used, the number of bush changes in the pump can be cut to a minimum and in a number of cases two pumps working normally can be used instead of three. In addition, altering the rotation speed permits the driller to make allowances for the depth of the bore hole, maintain any pressure constant, adjust working speeds, etc. Modern drilling pumps permit regulation of the drive within the limits 0.8 - 1.25. A typical regulatable electric drive for drilling pumps manufactured by the Uralmashzavod is described. There are 4 graphs, 1 circuit diagram, 3 tables and 6 Soviet references.

Card 1/1

1. Drilling machines-Equipment 2. Pump drives-Electric-Operation

KOTSOKHEYN, B.I.

Survey of the present-day designs of pulsation dampeners and the analytical method for determining  $\Delta V$ . Trudy MNI no.23:158-175 '58. (MIRA 12:1)

(Oil well pumps) (Oil fields--Equipment and supplies)

ARKHANGEL'SKIY, Nikolay Konstantinovich, inzh.; GLAZKOV, Aleksandr  
Nikolayevich, inzh.; IVANKOV, Pavel Aleksandrovich, inzh.;  
MIKHAYLOV, Vram Vagranovich, kand.tekhn.nauk; MOVSESOV,  
Moses Savadovich, inzh.; MOTSOKHIN, Boris Iosifovich, inzh.;  
VRONSKIY, L.N., vedushchiy red.; POLOSINA, A.S., tekhn.red.

[Handbook on oil field electric equipment] Spravochnik po  
neftepromyslovoi elektrotekhnike. By N.K.Arkhangeli'skiy i dr.  
Moskva, Gos.nauchno-tekhn.isd-vo neft. i gorno-toplivnoi lit-ry.  
1961. 472 p. (MIRA 14:12)  
(Oil fields--Electric equipment)

MOTSOKHEYN, B.I.

Selection of maximum speed for draw works. Mash. i nef. obr.  
no.3:31-36'63 (MIRA 17:7)

1. Vsesoyuznyy ordena Trudovogo Krasnogo Znameni nauchni-is-  
sledovatel'skiy institut elektromekhaniki.

MOTSOKHEYN, Boris Iosifovich; SHKOL'NIKOV, B.M., kand. tekhn.  
nauk, retsenzent; VRONSKIY, L.N., ved. red.

[Electric drive of draw works; efficient parameters]  
Elektroprivod burovykh lebedok; ratsional'nye parametry.  
Moskva, Nedra, 1965. 226 p. (MIRA 18:7)



SALYAK, I.I.; NOTSOKHEYN, B.I.

Results of tests of the electrodynamic brake of the  
"URALMASH-90" test drilling rig. Mash. i nefte.obor. no.11:  
4-8 '64.

(MIR 1964)

1. I'vovskiy politekhnicheskiy institut i Vsesoyuznyy  
nauchno-issledovatel'skiy i proyektno-konstruktorskiy institut  
po avtomatizirovannomu elektroprivodu v promyshlennosti,  
sel'skom khozyaystve i transporte.

KORNEYEV, Grigoriy Kus'mich, kand.tekhn.nauk; KOROTOV, Mikhail Grigor'yevich,  
insh.; ~~KOROTKIN, Leonid Savell'yevich~~, insh.; ZHDANOV, Boris  
Vladimirovich, insh. [deceased]; BURAGO, M.Ya., insh., retsenzent;  
PROZOROV, B.I., insh., red.; SIROTIN, A.I., insh., red.isd-vs;  
MODEL', B.P., tekhn.red.

[Passenger and freight elevators] Liftы passazhirskie i gruzovye.  
Moskva, Gos. nauchno-tekhn.isd-vo mashinostroit. lit-ry, 1958.  
567 p. (MIRA 12:2)

(Elevators)



AKRAMKHODZHAYEV, A.M.; AKHMEDZHANOV, M.A.; BABAYEV, A.G.; BABAYEV, K.L.;  
 BATALOV, A.B.; BASHAYEV, N.P.; BAYMUKHAMEDOV, Kh.N.; BRAGIN,  
 K.A.; BORISOV, O.M.; GABRIL'YAN, A.Sh.; GAR'KOVETS, V.G.;  
 GOR'KOVOY, O.P.; GRIGORYANTS, S.V.; IBADULLAYEV, S.I.; ISMAILOV,  
 M.I.; ISAMUKHAMEDOV, I.M.; KAKHKHAROV, A.; KENESARIN, N.A.;  
 KRYLOV, M.M.; KUCHUKOVA, M.S.; LORDKIPANIDZE, L.N.; MAVLYANOV,  
 G.A.; MOTSOKINA, T.M.; MALAKHOV, A.A.; MIRBABAYEV, M.Yu.;  
 MIRKHODZHIYEV, I.M.; MUSIN, R.A.; NABIYEV, K.A.; PETROV, N.P.;  
 POPOV, V.I.; PLATOVA, N.A.; RYZHKOV, O.A.; SAYDALIYEVA, M.S.;  
 SERGUN'KOVA, O.I.; SLYADNEV, A.F.; TULYAGANOV, Kh.T.; UKLONSKIY,  
 A.S.; KHAMRABAYEV, I.Kh.; KHODZHIBAYEV, N.N.; CHUMAKOV, I.D.;  
 SHAVLO, S.G.

Khabib Mukhamedovich Abdullaev; obituary. Uzb.geol.zhur. 6  
 no.4:7-9 '62. (MIRA 15:9)  
 (Abdullaev, Khabib Mukhamedovich, 1912-1962)

*Motsonelidze, N. S.*

124-11-13112

Translation from: Referativnyy Zhurnal, Mekhanika, 1957, Nr 11, p 121 (USSR)

AUTHOR: Motsonelidze, N. S.

TITLE: Simplified Dynamic Calculation of Circular Arches.  
(Uproshchennyi dinamicheskiy raschet krugovykh arok)

PERIODICAL: Tr. Gruz. politekhn. in-t, 1956, Nr 6 (47), pp 16-23

ABSTRACT: An approximate formula is derived for the calculation of the free vibrational frequency of a circular two-hinge arch of variable section, subjected to a hydrostatic loading. Upper and lower values of the frequency are estimated. Computation is performed by the matrix method.

As an example, the basic vibrational frequency is investigated for a two-hinge arch, the cross-sectional moment of inertia of which is given by the formula

$$J_x = \frac{J_0}{\cos 0.6 \phi_x}$$

Card 1/1 where  $J_0$  is the moment of inertia of the arch at the key section.

(A. I. Osleled'ko)

MOTSONELOWE, H.S.

Calculating the stability of buttresses elastically on a  
foundation. Trans. ASCE, Div. 1, no. 1,03-66, 1963.

Calculating the stability of dam buttresses for longitudinal  
bending. Ibid., 1964.

MOTT, Nevill Francis

Science

Theory of atomic collisions. Pod. red. IA.I. Frenkelia, Moskva, IZD-vo inostrannoi lit-ry, 1951. T. A. Kontorovoi

Monthly List of Russian Accessions, Library of Congress, June 1952. Unclassified

MOTT, N.F.; TUZ, U. [Twose, W.D.]; SANDOMIRSKIY, V.V. [translator];  
GOR'KOV, V.A. [translator]; ZHDAN, A.G. [translator]

"The theory of impurity conduction". Usp. fiz. nauk 79 no.4:  
691-740 Ap '63. (MIRA 16:3)

(Electric conductivity)



S/058/63/000/003/020/104  
A160/A101

AUTHOR: Mottel'son, B.

TITLE: Coupling schemes of nucleons and a microscopical description of the collective effects

PERIODICAL: Referativnyy zhurnal, Fizika, no. 3, 1963, 4 - 5, abstract 3V38  
(In collection: "Stroyeniye yadra", M., Gosatomizdat, 1962, 215 - 226. Discuss., 226 - 230)

TEXT: A summary is given of the works regarding the investigation of paired correlations in the nuclei. The starting moment of the mentioned investigations is the assumption of the existence of two types of residual interactions: a residual interaction leading to pairing (to the formation of Cooper's pairs), and a quadrupole-quadrupole interaction. The equilibrium configurations of the nuclei depend on the competition between these two types of residual interactions. It is noted that the distinction of the magnitude of the inertia moments of strongly deformed nuclei from the solid limits is connected with the appearance of the first-type residual interaction. Presented are the results of calculating the inertia moment by taking into account the effect of paired cor-

Card 1/2

S/058/63/000/003/020/104  
A160/A101

Coupling schemes of nucleons and a...

relations. It is indicated that the theory corresponds to the experiment within 20%. The collective excitations of spherical nuclei are considered. The main attention is devoted to the explanation of the nature of low-lying  $2^+$  levels in spherical nuclei. From this point of view, the results of the calculations based on the adiabatic method are analyzed. These levels are explained as collective oscillations of the surface of a nucleus of a quadrupole symmetry. The mass coefficient for such type oscillations proves to be ten times higher than the hydrodynamical value. The results of the calculations in the adiabatic approximation are compared with the results of the calculations obtained by Savada's method (the method of approximate secondary quantization). As expected, the results coincide in the case in which the energy of the collective levels is much lower than the energy needed for exciting the quasi-particles. In conclusion, a survey is given of the attempts of analyzing the excited states of closed shells on the basis of the existing concepts of the nature of collective excitations. See also Referativnyy zhurnal, Fizika, 1961, 9B159.

D. Zaretskiy

[Abstracter's note: Complete translation]

Card 2/2

MOTTL, Jan. inż.

← Isotopic meter for the thickness of bands IMG-1. Przegl  
elektrotechn 38 no.2:79 '62.

Country : CZECHOSLOVAKIA  
Category: Forestry. Forest Cultures.

K

Abstr Jour: RZhBiol., No 11, 1958, No 48782

Author : Mottl. Jir.  
Inst : ~~Czechoslovak~~ Sci. Forestry Society  
Title : The Planting of Poplars

Orig Pub: Lesn. prace, 1957, 36, No 1, 28-36

Abstract: In October 1956, the excursion of the Czechoslovak Scientific Forestry Society became acquainted with poplar cultures at the Opochenskiy experimental leskhoz. It is noted that the hybrid offspring is distinguished by a great variegation of forms. The majority of the hybrids are infected with canker and lag in growth behind the varieties propagated

Card : 1/3

KOTTL, J., PhMr

Regeneration of culture media by application of yeast extract.  
Cesk. hyg. epidem. mikrob. 2 no.1:64-67 Feb '53.

1. Ustav epidemiologie a mikrobiologie, red. doc. K.Baska.  
    (CULTURE MEDIA,  
      regen. with yeast extracts)  
    (YEAST, DRIED,  
      extract, in prep. of culture media)

MOTTL, JOSEF

SCHUH, Vaclav, MUDr; MOTTL, Josef, PhMr

Growth properties of yeast extracts. Cesk. hyg. epidem. mikrob. 2  
no.2:145-148 Apr '53.

1. Ustav epidemiologie a mikrobiologie, Praha (reditel doc. dr.  
Karel Raska)

(YEAST, DRIED,

extract, eff. on bact. growth in vitro)

(BACTERIA, effect of drugs on,  
yeast extracts, growth in vitro)

MOTTLA, Josef, PhMr.; SCHUH, Vaclav, MUDr.; za tech. spoluprace  
M. Budesinske.

Determination of the concentration of Proteus-Providence  
with the aid of oxidative deamination of L-tryptophan. Cesk.  
epidem. mikrob. imun. 5 no.3:147-151 June 56.

1. Ustav epidemiologie a mikrobiologie, Praha, reditel prof.  
MUDr. K. Raska.

(BACTERIA,

Providence, determ. with tryptophan, oxidative  
deamination technic (Cz))

(PROTEUS,

determ., tryptophan oxidative deamination technic (Cz))

(TRYPTOPHAN,

determ. of Proteus-Providence group, oxidative  
deamination technic (Cz))

810777, J.

EXCERPTA MEDICA Sec.4 Vol.10/4 Microbiology Apr 57

771. MOTTL J. Ustav Epidemiol. a Mikrobiol., Praha. \*Mikrotechnika pro rychlé zjišťování tvorby indolu. Micromethod for a rapid indol production test ČSL. EPIDEM. MIKROBIOL. IMUN. 1956, 5, 4 (190-194)  
The author describes a micromethod for testing the production of indol for routine diagnostic purposes. One colony from agar is emulsified in 0.3 ml. of medium, incubated for 3 hr. in water-bath at 37° C., then 2 drops of Ehrlich reagent are added. Positive results are manifested by pink colour; negative substances are colourless. 451 standard collection strains of enterobacteriaceae have been tested by this microtest. All the results were in accordance with the routinely used macrotest. The ability of providenciae to dissociate the accumulated indol is referred to; thus it happens that the results, positive after 24 hr., grow negative after 48 hr. The short incubation period of the proposed microtest excludes such falsely negative results.



MOTTL, Josef, Ph Mr.

Decomposition of indole by strains of the Providencia group.  
Cesk. epidem. microb. imun. 6 no.1:60-63 Jan 57.

1. Ustav epidemiologie a mikrobiologie, Praha, reditel prof.  
Dr. K. Raska.

(BACTERIA, metabolism,  
Prvidence, decomposition of indole (Cs))  
(INDOLE, metabolism,  
Prvidence bact., decomposition (Cs))

EXCERPTA MEDICA Sec.4 Vol.11/2 Med.Microbio.etc. Feb 58

- Mottl J.
285. MICROMETHOD FOR QUICKLY DETECTING THE NITRATE REDUCTION. Mikrotechnika pro rychlé zjišťování redukce nitrátů. Mottl J, Ústav Epidemiol. a Mikrobiol., Praha. ČSL. EPIDEM. MIKROBIOL. IMUN. 1957, 6/3 (179-182) Tables 2

A micromethod is described for detecting the microbial reduction of nitrates for the use of routine diagnosis. The reaction is carried through in 0.3 ml. of buffered saline with 0.1%  $\text{KNO}_3$ , and after inoculation the test tubes have to be incubated during 3 hr. in a water bath. Then the Griesse agent, 1 drop of sulphanilic acid solution, and 1 drop of  $\alpha$ -naphthylamin solution, eventually zinc, are added. The positive reaction is red; when it is negative the substrate remains colourless. There is no need for an absolute sterility of the manipulation.

MOTTL, Josef, PhMr.

Rapid method of determination of fermentation of certa in carbohydrates. Cesk. epidem. mikrob. imun. 6 no.4:278-280 July 57.

1. Ustav epidemiologie a mikrobiologie, Praha, reditel prof. Dr. K. Raska.

(FERMENTATION,  
determ. in carbohydrates (Cs))

MOTTL, J.

Micromethod of rapid determination of H.S. Cesk. epidem. mikrob. imn.  
6 no.5:334-336 Sept 57.

1. Ustav epidemiologie a mikrobiologie, Praha, reditel prof. dr. K.  
Raska.

(SULFIDES, determination,  
hydrogen sulfide prod. by Enterobacteriaceae,  
micromethod (Cz))

(BACTERIA,  
Enterobacteriaceae, prod. of hydrogen sulfide,  
micromethod of determ. (Cz))

MOTTI, Josef

Microtechnic of rapid acetylmythlcarbinol production; Voges-Proskauer's test. Cesk. epidem. mikrob. immun. 7 no.3:202-205 May 58.

1. Ustav epidemiologie a mikrobiologie v Praze.

(ESCHERICHIA COLI, infection,

differ. diag. from Aerobacter cloacae infect., Voges-Proskauer's test (Cz))

(AEROBACTER, infections,

cloacae, differ. diag. from E. coli infect., Voges-Proskauer's test (Cz))

RASKA, K.; BEDNAR, B.; ROTT, J.; JELINEK, J.; MOTT, J.

On the question of the virulence of haemolytic streptococci. J. hyg. epidem., Praha 3 no. 4: 357-364 1959.

1. Institute of Epidemiology and Microbiology, Prague and The  
First Institute of Pathology, Charles University, Prague.  
(STREPTOCOCCAL INFECTIONS exper.)

SCHUH, V.; JELINEK, J.; LUKES, R.; MOTTL, J.; SOUREK, J.

Determination of the number of microorganisms in suspension in relation to its density. Cesk. epidem. mikrob. imun. 8 no.2:113-121 Mar 59.

1. Ustav epidemiologie a mikrobiologie v Praze. V. Sch., Praha 12, Srobarova 48.

(SALMONELLA,

determ. of number of organisms in suspension, relation to density (Cz))

MOTTL, J.

Janik, J. Removal of waste viscose in the production of fibers.  
p. 249.  
VODA, Prague, Vol. 34, no. 8, Aug. 1954.

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 5, No. 6,  
June 1956, Uncl.



MOTTL, J.

Waste water from viscose-fiber production and its purification. p. 442.

Vol. 5, no. 12, Dec. 1955  
VODNI HOSPODARSTVI  
Praha, Czechoslovakia

So: Eastern European Accession Vol. 5 No. 4 April 1956

MOTTL, J.

Re-use of water.

p. 62  
Vol. 5, no. 1/2, Mar. 1956  
VODNI HOSPODARSTVI  
Praha

SO: Monthly List of East European Accessions (EEAL), LC, Vol. 5, no. 3  
March 1956

MOTIL, Josef, inz.

The size of filters for water clarification and mechanical filtration.  
Energetika Cs 11 no.7:330-334 JI '61.

CZECHOSLOVAKIA/Cultivated Plants - Medicinal. Essential Oil-Bearing. M  
Toxins.

Abs Jour : Ref Zhur Biol., No 12, 1958, 53873

Author : Janku, I., Hova, M., Mottl, O.

Inst :

Title : On the Effect of Substances Contained in the  
Ju

Orig Pub : Ch. 1956, 129, L. Farmac. sympos. 1956, 129

Abstract : It was determined at the Chemical Institute of the  
Academy of Sciences of CzSR that terpinol-4 contained  
in the juniper fruit has diuretic effect which surpasses  
the effect of caffeine and in this respect is close to  
mercury preparations. -- A.G. Vyatkina

Card 1/1

- 154 -

MOTTL, Otto, inz.

Czechoslovak Standard 73 6611 : Pressure Tests of Water Piping.  
Normalizace 11 no.8:255 Ag '63.

1. Hydroprojekt, Praha.

MOTTL, Otto, inz.

Czechoslovak Standard 73 6701: Sewerage Network and Sewage  
Conduits. Normalizace 11 no.10:325 0 '63.

1. Hydroprojekt, Praha.

MOTTL, S.

Valuation of a hunting district with roe deer. p. 99.

Vol. 7, 1954  
PRACE VYZKUMNYCH USTAVU LESNICKYCH CSR.  
Praha, Czechoslovakia

So: Eastern European Accession Vol. 5 No. 4 April 1956

MOTTL, S.

Diminishing occurrence of the woodcock Tetrao urogallus  
L. in Czechoslovakia. p. 237.  
OCHRANA PRIRODY. (Ministerstvo kultury, Statni pece o  
ochranu prirody) Praha.  
Vol. 10, no. 8, Nov. 1955.

SOURCES: EEAL LC Vol. 5, No. 10, Oct. 1956



MOTEL, S.; JANDA, M

Study of the effect of environment on roe deer. p.613. SBORNIK RADA  
LESNICTVI. Praha. Vol. 28, no. 4, August 1955

SOURCE: East European Accessions List, (EEAL) Library of Congress  
Vol. 5, No. 8, August 1956

MOTTL, S.

Food of roe deer (Capreolus caperolus capreolus L.) p.29.  
(Biologia, Vol. 12, No. 1, 1957, Bratislava, Czechoslovakia)

SO: Monthly List of East European Accessions (EEAL) LC. Vol. 6, No. 9, Sept. 1957. Uncl.

MOTTEL, S: FAV, J.

Effect of the environment on the weight of roe deer.

p. 629 (Sbornik. Rada Lesnictvi) Vol 30 no 2 Sept 1957. Praha, Czechoslovakia.

50: Monthly Index of East European Accessions (EEAI) 10, Vol. 2 no 1 Jan 1958

S/169/62/000/007/018/149  
D228/D307

24,2200

AUTHORS: Ibmayor, Ya., Dolezhal, I. and Mottlova, L.

TITLE: Appraisal of geophysical materials in the Flysch

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 7, 1962, 19, abstract 7A125 (Práce Výzkumn. ústavu čs. naft. dolů, 18, 1961, 38)

TEXT: Geophysical prospecting was carried out by gravimetric and magnetometric methods. Maps were compiled for gravity anomalies and for those of the vertical magnetic component. The density and the magnetic properties of rocks were studied in specimens, collected in the surveyed area. Data were obtained about the genetic causes of the gravity and the magnetic-field anomalies. [Abstracter's note: Complete translation.] ✓

Card 1/1

MOTTLOVA, Vera

Information survey No.9/1964 of the Institute for Standardisation  
of the Council for Mutual Economic Assistance. Normalisace  
13 no.3,102-105 Mr '65.

MOTU, Aurel

A commission for each problem, a real support in the Rumanian Trade Union activity. Munca sindic 6 no.10:44-47 0 '62.

1. Presedinte al Consiliului regional al sindicatelor, Cluj.

ACC NR:

AR6035233

SOURCE CODE: UR/0372/66/000/008/G027/G027

AUTHOR: Motukha, A. Yu.

TITLE: Calculating the reliability of linear recognition systems

SOURCE: Ref. zh. Kibernetika, Abs. 8G171

REF SOURCE: Sb. Avtomatika i vychisl. tekhn. Vil'nyus, 1965, 59-64

TOPIC TAGS: vector analysis, linear recognition system, recognition system, pattern vector

**ABSTRACT:** A method is proposed for calculating the reliability of linear recognition systems, based on the linear transformation of the  $n$ -dimensional pattern vector  $\alpha$ , where  $M$  is the number of classes. The solution is taken from the maximum coordinate of the  $S$  vector, which is a result of this transformation. Analytical probability equations are derived for correct recognition for the following cases: 1) the  $\alpha$ -patterns are distributed normally in each class; 2) the parameters of recognition systems and components of the  $\alpha$ -vector are independent random values with normal distribution. Examples are given for reducing the

Cord 1/2

UDC: 62-506:621.391.193

ACC NR: AR6035233

existing recognition systems to this mathematical model (in particular, the method of correlation coefficients). Bibliography of 6 titles. [Translation of abstract]  
[NT]

SUB CODE: 12/

Card 2/2



MOTULEVICH, A.P.

Illumination of industrial buildings through light-directing  
glass. (rom. etiol. 41 no. 1 21-24 Ja '64. (MIRA 17:6,

MOTULEVICH, D. Yu.

Motulevich, D. Yu. -- "Investigation of the Dynamic Characteristics of the Chlorine Drying Division of the Electrolysis Department With the Object of Regulating and Calculating the Possibility of Its Complex Automatization." Cand Tech Sci, Inst of Automatics and Telemechanics, Acad Sci USSR, Moscow, 1953. (Referativnyy Zhurnal--Khimiya, No 1, Jan 54)

So: SUM 168, 22 July 1954

MODTULEVICH, D. Yu

PHASE I BOOK EXPLOITATION

869

Avtomatizatsiya proizvodstvennykh protsessov (Automation of Production Processes) No. 2. Moscow, Izd-vo AN SSSR, 1958.  
177 p. 6,000 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Institut avtomatiki i telemekhaniki.

Resp. Ed.: Lossiyevskiy, V.L., Doctor of Technical Sciences, Professor; Ed. of Publishing House: Klimov, V.A.; Tech. Ed.: Rylina, Yu. V.

PURPOSE: This volume is intended for specialists engaged in research work and planning of automation process in various branches of industry.

COVERAGE: The volume contains articles summarizing the results of investigations carried out in laboratories for the automation of production processes of the Institut avtomatiki i telemekhaniki,

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Automation of Production Processes

869

AN SSSR (Institute for Automatics and Telemechanics of the USSR Academy of Sciences). The articles discuss the following topics: 1) basic objectives of automation 2) classification of industrial processes and formulation of typical automation solutions 3) experimental methods employed in studying industrial processes subject to regulation 4) considerations in determining the rational sequence and the extent of automation, and 5) results of studies on the automation of some industrial processes and establishments.

TABLE OF CONTENTS:

Foreword

3

GENERAL PROBLEMS OF AUTOMATION

Lossiyevskiy, V.L. Objectives of Automating Industrial Processes

7

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Automation of Production Processes

869

The study attempts to characterize the status of automation of production processes and to chart the more important directions for further development. There are no references.

Finkel'shteyn, S.M. Classification of Production Processes Subject to Automation and Typical Solutions of the Latter

19

The author reviews the classification of automated production processes with emphasis on continuous flows production which in terms of present instrumentation and outlook is most suitable for automation. There are 10 Soviet references.

Motulevich, D.Yu. and Tagayevskaya, A.A. Types of Controller Actions During Experimental Studies of Controlled Processes

43

Types of controller actions employed in studying industrial processes are reviewed, optimum conditions for the use of this or that controller action are indicated, shapes of curves for transition process and characteristics of stable conditions for single capacity plants are shown,

Card 3/7

Automation of Production Processes

869

and spectra for a number of nonperiodic actions are presented. There are 2 appendixes and 6 Soviet references.

Rushchinskiy, V.M. Experimental Determination of Amplitude-phase Characteristics of Controlled Plants Based on a Transient Process With a Disturbance in a Form of a Rectangular Wave Impulse

65

Description of the method is presented. There are 10 Soviet references.

Rushchinskiy, V.M. Determining the Approximate Expression for Transfer Functions of the Controlled Plant Based on Its Experimental Frequency Characteristics

74

The author presents several solutions to the problem of lag detection. There are 4 Soviet references.

Lossiyevskiy, V.L. Determination of Rational Sequence and the Extent of Automation of Industrial Processes

83

This is an attempt to develop an analytical method which would permit the determination of production sectors most suitable for automation. The method consists basically of

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Automation of Production Processes

869

a review of production costs, analysis of material and labor expenditures, and subsequent introduction of automation on sectors where automation appears to be economically more effective than conventional methods of production. There are 1 Soviet, 1 Czech, and 1 American references.

AUTOMATION OF INDUSTRIAL PLANTS

Popovskiy, A.M., Gritskov, V.I., and Govorov, A.A. Automation of the Desiccating and Absorbing Departments of Plants Using the Contact Method of Producing Sulphuric Acid

97

The study describes fully the automation of the desiccating and absorbing department of the Shchelkovskiy khimicheskiy zavod (Shchelkovskiy Chemical Plant). The principal product of this department is monohydrate and the automation embraces the processes within the desiccating tower, and oleum and monohydrate absorbing columns. There are 19 Soviet references.

Card 5/7

Automation of Production Processes

869

Gritskov, V.I. Investigation of a Cement Mill as an Object for Automation

133

Automation of a mill located in the vicinity of Novorossiysk consists largely of instrumentation and other means to assure the maintenance of acceptable quality of grist and liquid raw material mixture at a maximum productivity level. Description of instrumentation is included. There are 2 Soviet references.

Mezin, I.S. and Malyy, A.L. Automation of Drying Drums

139

The study presents basic concepts for the selection of a rational automation plan for a drying drum and describes its performance under normal production conditions. Reference is made to I.V. Vayser, Candidate of Technical Sciences, who participated in the work of the Institute for Automatics and Telemechanics of the USSR Academy of Sciences. There are 4 Soviet references.

Card 6/7



26237  
S/119/61/000/008/003/008  
D215/D302

28,1000 (1064,1089)

AUTHORS: Motulevich, D.Yu., and Yastrebenetskiy, M.A.

TITLE: A comparison between hydraulic and electrohydraulic controllers of "Teploavtomat" manufacture

PERIODICAL: Priborostroyeniye, no. 8, 1961, 6 - 8

TEXT: The electrohydraulic have the following advantages over the hydraulic controllers: transmitter, controller, and actuator can be separated, whereas in hydraulic controllers the transmitter is mechanically coupled with the hydraulic amplifier and the horizontal distance between the amplifier and the actuator is limited to 100-120 m, and the vertical distance to 30-35 m; the controller can operate with a number of transmitters having an electric output smaller in size than its hydraulic counterpart; in certain electrohydraulic controllers the oil supply system, the amplifier and the actuator are built into one single unit. The only disadvantage of the electro hydraulic system is its complexity. Both, hydraulic

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S/119/61/000/008/003/008  
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A comparison between hydraulic ...

and electro-hydraulic integral controllers have good dynamic properties. The transfer function of an I-controller is  $W_I(p) = S/P$ , where  $S$  - gain of I controller. In the case of the electro-hydraulic controller type APK-1 (ARK-1)  $S_{max} = 50.4$  mm/sec.  $W$  for d.d. input signals. The transfer function of a proportional hydraulic and electrohydraulic controller in the frequency range up to 3 rad/sec. is  $W_I(p) = - (k/T_p + 1)$ , where  $k$  - gain of P-controller;  $T$  - time constant of balast link. The gain of a hydraulic controller can be varied by adjusting the transmission ratio of the mechanical feedbacks rod. The gain of an electro hydraulic controller is determined by the value of feedback voltage and can vary between 0.195 and infinity. The transfer function of an (P + I) controller in the range of frequencies up to 2 rad/sec. is given by

$$W_{P+I}(p) = - \frac{k(T_1 p + 1)}{T_1 p (1 + S + S T_1 p)}$$

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S/119/61/000/008/003/008  
D215/D302

A comparison between hydraulic ...

where  $T_i$  - time of isodrome;  $S$  - coefficient representing the deviation of frequency response characteristics of an actual proportional plus integral controller from that of an ideal (P + I) controller. The limits of variation of gain  $K$  in (P + I) controllers are correspondingly the same as in P controllers. The magnitude of the isodrome line is determined by the position of the damper throttle valve  $T_i \max \leq 30$  sec. When the opening of the damper valve is less than  $90^\circ$  the values of  $T_i$  are widely spread and hence the isodrome performance is unstable. When the valve opening exceeds  $360^\circ$ , the system becomes practically an I-controller. In electro-hydraulic controllers the differentiating link is represented by the RC network ( $T_i = R_i C_i$ ). The limits of variation of  $T_i$  are 20 to 500 sec. When the moving part of the actuator reaches the limiter, the feedback signal drops. With the change of sign of input signal the magnitude of travel of the actuator is smaller than it would have been without mechanical limiters. The electro-

Card 3/4

A comparison between hydraulic ...

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S/119/61/000/008/003/008  
D215/D302

hydraulic controllers made by "Teploavtomat" have many advantages  
and a wider field of application than the hydraulic types. There  
are 3 figures and 3 Soviet-bloc references.

Card 4/4

MOTULEVICH, D.Yu.; YASTREBENETSKIY, M.A.

Modern foreign electrohydraulic regulators (survey). Pritoro-  
stroenie no.10:20-25 0 '61. (MIRA 14:9)  
(Electric controllers) (Hydraulic control)

MOTULEVICH, G. P. Cand. Physicomath. Sci.

Dissertation: "Molecular Dispersion of Light in Crystals." Physics Inst., P. N. Lebedev,  
Acad. Sci. USSR, 28 Feb. 1947

\$0: Vechernyaya Moskva, Feb. 1947 (Project #17836)

1ST AND 2ND ORDERS																										100 AND 5TH ORDERS																									
PROCESSES AND PROPERTIES INDEX																																																			
2																																																			
<p><i>Molecular dispersion of light in crystals. G. P. Motu- levich. Bull. acad. sci. U.R.S.S., Ser. phys. 11, 590-600 (1947). — In the theoretical part M. calculates the disper- sion, considering it as a diffraction of elastic waves in the crystal. Since the field of the diffraction wave is small as compared with the field of the incident light it can be treated as a first-order perturbation of Maxwell's equa- tions. The relative intensities and depolarizations of dispersed and undispersed light are calcd. for cubic crystals and for quartz. In the case of quartz the results differ for right- and left-handed crystals. Expts. were made on quartz, NaCl, and NaF; the mol. dispersion was studied by means of the temp. dependence of dispersed light. The exptl. results agree well with the theory, es- pecially as far as the anisotropy in quartz is concerned. S. Pakawer</i></p>																																																			
<p>450-554 METALLURGICAL LITERATURE CLASSIFICATION</p>																																																			
<p>EDITION: 1947/1948</p>																																																			
<p>EDITION: 1947/1948</p>																																																			

MOTULEVICH, G. P.

USSR/Physics

Rochelle Salt

Light - Dispersion

Sep/Oct 48

"Light Dispersion in Seignetteoelectric Substances (Rochelle Salt Crystals) and the Hydrogen Bond," F. S. Baryshanskaya, G. S. Landsberg, G. P. Motulevich, Phys Inst imeni P. N. Lebedev, Acad Sci USSR, 2½ pp

"Iz Ak Nauk SSSR, Ser Fiz" Vol XII, No 5 p 573-5

First part describes dispersion of light in Seignette's salt (Rochelle Salt). Second part is devoted to dispersion in  $\text{KH}_2\text{PO}_4$  and  $(\text{NH}_4)\text{H}_2\text{PO}_4$  and its importance in theory of Seignetteoelectricity (electrical phenomenon of Rochelle salt crystals, i.e., surface charges, oscillation, etc.)

PA 19/49T94



S.A.  
Set. A

Molecular & X-Ray  
Crystallography

548.7 : 513.43  
1938. Molecular scattering of light in crystals.  
G. P. MOTULSKY. — *Trudy Fizicheskogo Instituta*  
P.N. Lebedeva, Vol. 5. Moscow, Akademii Nauk,  
USSR (1938) pp. 9-62.  
Dissertation presented at the Lebedev Physical  
Institute.

3

CA

Rayleigh scattering of light in liquids. G. P. Motulevich and I. L. Fabelinskii. *Izv. Akad. Nauk S.S.S.R., Ser. Fiz.* 16, 512-4 (1950). - The isothermal first deriv.  $\rho(d\sigma/d\sigma)_{\text{is}}$ , where  $\rho = d$  of the liquid and  $\sigma = \pi^2$ , is included in the formula for the scattering coeff. This deriv. is practically equal to the adiabatic deriv.  $\rho(d\sigma/d\sigma)_{\text{ad}}$ , which can be measured by the interaction of a light and an ultrasonic wave. Monochromatic light,  $\lambda = 4358 \text{ \AA}$ , is projected on a vessel in which an ultrasonic wave is created by a piezocrystal. The light is then projected through a stepfilter on a photographic plate. The pressure of the ultrasonic wave is measured with a microradiometer. The probable errors are discussed and a value for  $\rho(d\sigma/d\sigma)$  of 0.73 is obtained for  $\text{H}_2\text{O}$ , which leads to a calcd. value of the scattering coeff.  $R = 1.73$ , in good agreement with measured values. S. P. Petrov

Phys. Inst. im. Lebedev, AS USSR

1951

3

Molecular scattering in Iceland spar G. P. Motulevich and Z. M. Turutsova *Zhur. Khim. Fiz.* 20, 334, 9(1930). — The intensity, polarization, and frequency of light scattered by Iceland spar are calcd. for light incident along each axis of symmetry. Theoretically,  $I^0 : I^1 : I^2 = 1.81 : 0.20 : 1.00$ ; expt. gave  $I^0 : I^1 : I^2 = 1.14 : 1.00 : 1.00$ , where  $I^0$  represents the intensity of light scattered along the 2-fold axis of symmetry and  $I^1$  represents that of light scattered along the axis of twofold symmetry. The lack of agreement is attributed to parasitic scattered light.

Cyrus Feldman

USSR/Physics - Instruments  
Acoustics, Measurement

Jan 50

"An Absolute Acoustic Microradiometer," G. P. Motulevich, I. I. Fabelinskiy, L. N. Shteyngauz, Phys Inst Imeni P. N. Lebedev, Acad Sci USSR, 3 pp

155T70

"Dokl Ak Nauk SSSR" Vol LXX, No 1

Major defect in most radiometers is that pressure receiver (whether of plane or spherical form), deflecting under action of sound, is subjected to different effective pressures because of change in position of receiver. Devised radiometer with electromagnetic compensation for this force. Instrument

155T70

USSR/Physics - Instruments (Contd)

Jan 50

can be used to measure forces from  $10^{-3}$  to  $10^3$  dynes. This radiometer, when protected from air motion by casing, might be used to determine amplitude of ultrasonic waves in liquids. Submitted by Acad G. S. Landsberg 1 Nov 49.

MOTULEVICH, G. P

155T70

NOTULEVICH, G. P.

USSR/Physics - Acoustics 11 Dec 51

"Concerning an Optical Method for Checking the Character of the Acoustic Field," G. P. Motulevich, I. L. Fabelinskiy, Phys Inst Imeni Lebedev, Acad Sci USSR

"Dokl Ak Nauk SSSR" Vol LXXI, No 5, pp 787-790

Subject method is based on the investigation of the intensity of the 1st diffraction max of light in dependence upon the direction of propagation of ultrasonic waves. Describes the theory of the proposed method for checking the character of the acoustic field thus: If at a plane sonic wave

210708

USSR/Physics - Acoustics (Contd) 11 Dec 51

propagated in the xy-plane under angle  $\varphi$  to the y-axis a parallel beam of light is incident in the direction of the x-axis, then the intensity of the light diffracted under  $\varphi$  to the x-axis is set for small amplitudes of sound by a formula. Submitted by Acad G. S. Landsberg 22 Oct 51.

210708

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Molecular scattering of light in liquids. G. P. Motulevich and I. L. Fabelinskii. *Doklady Akad. Nauk S.S.S.R.* 83, 213-4 (1962); cf. *C.A.* 48, 2347i.—Einstein's formula for the scattering coeff.  $R = (a^2/2\lambda^4) kT [(1 + \Delta)/(1 - \frac{1}{2}\Delta)]$  (where  $\lambda$  = wave length of the light,  $kT$  = isothermal compressibility,  $\Delta$  = depolarization of the scattered light, and  $a = \rho n^2/\rho$ , with  $\rho = d$ , and  $n$  = dielec. const.) has been giving systematically too high  $R$  as compared with exptl. data. The reason for this discrepancy is seen in the use of static  $a$ , not suitable for light-scattering phenomena. The agreement between theory and exptl. becomes better if  $a$  is detd. from diffraction of light by supersonic waves; it is calcd. by  $a^2 = (3.02 \Delta n^2 \rho^2 / v^2) [(I_1/I_0)/F]$ , where  $h$  and  $a$  are the dimensions of the radiometer prism (angle  $120^\circ 20'$ ),  $n$  is the refractive index,  $v$  the sound velocity in the liquid,  $l$  the length of the sound column,  $I_1/I_0$  the ratio of the intensities of the 1st diffraction max. and of the incident light, and  $F$  the force exerted by the supersonic wave on the radiometer collector; the magnitudes measured are  $I_1/I_0$  and  $F$ . This method gives the dynamic  $a$  at const. entropy (adiabatic); the const.-temp.  $a$  is obtained therefrom with the aid of the usual thermodynamic relations. Values of the dynamic  $a$  are thus obtained, in  $\text{\AA}$ :  $4356 \text{\AA}$ , and a frequency of  $1.044$  and  $1.064 \times 10^7$  ( $2.960 \times 10^8$  for  $\text{C}_6\text{H}_6$ , to avoid too large a correction for absorption), are:  $\text{H}_2\text{O}$  0.796,  $\text{MeOH}$  0.796,  $\text{EtOH}$  0.866,  $\text{Et}_2\text{O}$  0.866,  $\text{C}_6\text{H}_6$  1.51,  $\text{PhMe}$  1.515; these are distinctly lower than the static  $a$ , 0.866, 0.902, 1.041, 0.969, 1.62, 1.602, measured at  $5461 \text{\AA}$ . Absence of a dispersion of  $a$  was ascertained with  $\text{C}_6\text{H}_6$  in  $4356$  and  $5461 \text{\AA}$ , and with  $\text{PhMe}$  in  $4447$ ,  $4356$ , and  $5461 \text{\AA}$ ; the values of  $a$  are the same within 1%. The alleged dispersion, asserted by A. F. Turner (Thesis, Berlin 1945) does not exist. Best agreement with

the exptl.  $R$  and Einstein's formula is obtained with dynamic  $a$  values detd. in this way; static  $a$  give a systematic discrepancy. Agreement with the King and the Lorentz-Lorentz formulas is only occasional and, when present, manifestly fortuitous. The systematic discrepancy between the dynamic and the static  $a$  cannot be explained.

N. Thon

MOTULEVICH, G. P.

1623. A study of the acoustic radiation of barium titanate. G. P. MOTULEVICH AND I. L. FABELINSKI. Zh. Eksper. i Teor. Fiz., No. 4(11) 603-13 (1953) in Russian.

A sample (one of 11, usually in the form of a disk of thickness 2-10 mm and diameter 17-35 mm) was placed in a vessel containing a liquid (toluol, benzol, glycerine) and piezoelectric oscillations induced by the application of a potential  $V$  (from a fraction of a volt to 200 V and frequencies from  $4 \times 10^4$  c/s upwards). The nature of the acoustic frequency spectrum was studied by optical and radiometric methods [Absir. 4786 (1950)] up to the 13th harmonic for thick samples. (Only odd harmonics appear.) A fine structure in the fundamental mode was observed, the splitting being independent of sample and strength of applied potential. The 2 components lie on either side of the frequency calculated by dividing the 3rd and 5th harmonic by 3 and 5, respectively. No explanation could be found. At  $V = 8$  volts the radiated intensity at resonance ( $5.40 \times 10^3$  c/s) exceeded that from quartz (at  $5.78 \times 10^3$  c/s) by a factor 700. The velocity of sound in barium titanate was deduced to be  $5.12 \times 10^3$  cm/sec from the resonance frequencies of samples of known thickness. A power of 0.6 W/cm<sup>2</sup> could be radiated steadily, but at 3 W/cm<sup>2</sup> the samples became depolarized through heating. This could be obviated by cooling or the application of a constant polarizing field.

W. J. SWIATECKI

Translation M-834, 19 Oct 55

MOTULEVICH, G. P.

USSR/Physics - Properties of metals

Card 1/1 Pub. 43 - 3/62

Authors : Ginzburg, V. L., and Motulevich, G. P.

Title : Optical properties of metals

Periodical : Izv. AN SSSR. Ser. fiz. 18/6, 631-634, Nov-Dec 1954

Abstract : Report was submitted at the 9-th All-Union Conference on Spectroscopy describing various means for studying and determining the optical properties of metals with the aid of spectroscopy. The parameters most important in determining the characteristics of metals are listed. The instruments normally employed in metal spectroscopy are described. Sixteen references; 5 USSR, 3 German, 1 English and 7 USA (1913-1954). Table; graph.

Institution : Acad. of Sc., USSR, The P. N. Lebedev Physics Institute

Submitted : .....



MOTULEVICH, G.P.

USSR/ Physics - Metallo-optics

Card 1/2 Pub. 118 - 1/3

Authors : Ginsburg, V. L., and Motulevich, G. P.

Title : Optical properties of metals

Periodical : Usp. fiz. nauk 55/4, 469-535, Apr 1955

Abstract : A theoretical experimental analysis of the optical characteristics of metals is presented. The effective indexes of refraction -  $n_{\text{eff}}(\omega)$ , and absorption -  $\chi_{\text{eff}}(\omega)$  - of light by metals are discussed. The methods of their determination are described, as well as the determination of the  $A(\omega)$ , a quantity of light absorbed by metal when the light falls normally upon the metal surface; thus,  $A(\omega)=1-r(\omega)$ , where the  $r(\omega)$  is a coefficient of light reflexion by a metal. However, only the simple cases are considered in which light, of the infra-red spectral region frequencies, is reflected

Institution : .....

Submitted : .....

Card 2/2 Pub. 118 - 1/3

Periodical : Usp. fiz. nauk 55/4, 469-535, Apr 1955

Abstract : by an isotropic surface of non-magnetic metals, i.e., cases in which the quantum absorption does not take place. Sixty-five references: 16 USSR, 9 German, 9 British, 24 USA and 7 French (1906-1955). Tables; diagrams; graphs.

GOLOVASHKIN, A.I.; MOTULEVICH, G.P.

Optical properties of tin at helium temperatures. Zhur. eksp.  
i teor. fiz. 47 no.1:64-72 J1 '64. (MIRA 17:9)

1. Fizicheskiy institut imeni Lebedeva AN SSSR.

*MOTULEVICH, G.P.*  
Category : USSR/Optics - Physical Optics

K-5

Abs Jour : Ref Zhur - Fizika, No 1, 1957, No 2342

Author : Motulevich, G.P., Fabelinskiy, I L.  
Inst : Physics Institute, Academy of Sciences USSR  
Title : On the Dependence of the Index of Refraction on Density at Low Audio Frequencies

Orig Pub : Dokl. AN SSSR, 1956, 106, No 4, 637-640

Abstract : Description of the authors' original method of measuring  $\partial \epsilon / \partial \rho$  at the low 50-cycle frequency. Two layers of the investigated substances are placed in the arms of a Jamin interferometer, and the density of one layer is varied sinusoidally. The authors worked out a special procedure to determine exactly the value of  $\Delta \epsilon / \rho$  with respect to the change in density, at which the contrast of the interference pattern vanishes. The value of  $\rho \partial \epsilon / \partial \rho$  is calculated most accurately at this point. Values of  $0.90 \pm 0.02$  and  $1.61 \pm 0.06$  were obtained for water and benzol respectively. A summary table of previously-published results is given. The dispersion observed in the 50 to  $10^7$  cycle range and the fact that  $\rho \partial \epsilon / \partial \rho$  has the same values both for 0 and 50 cycles and for  $10^7$  -  $10^{10}$  cycles cannot be explained by assuming this quantity to be dependent on a certain region, the radius of which is of the order of magnitude of the radius of the action of the intermolecular forces.

Card : 1/1